

APPENDIX A

VERIFICATION OF TRANSLATION

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in Japan

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[Document Name] Specification

[Title of the Invention] Radio Portable Terminal
Communication System

[Claim or Claims]

[Claim 1] A radio portable terminal
communication system characterized by

a radio portable terminal including a
microphone, a speaker, a display screen, and a key
operation section, and having a speech communication
function and a packet communication function, and

a center including a speech control section
for performing speech communication with said radio
portable terminal during execution of packet
communication by said radio portable terminal, a speech
recognition section for recognizing a speech signal
received by said speech control section and sent from
said radio portable terminal, an information search
section for searching for information corresponding to
the speech information recognized by said speech
recognition section, a speech conversion section for
converting the information which can be converted into
speech of the information searched out by said
information search section into a speech signal and
outputting the signal to said speech control section,
and a packet control section for transmitting
information which can be displayed on a screen of the
information searched by said information search section

to said radio portable terminal by packet communication.

[Claim 2] A radio portable terminal communication system according to claim 1, characterized in that said information search section of said center has a function of searching for information through the Internet.

[Claim 3] A radio portable terminal communication system according to claim 1 or 2, characterized in that said speech control section of said center comprises a correspondence table of a self-station IP address of said radio portable terminal and a self-station speech communication address, and has a function of notifying said packet control section of the self-station IP address which is obtained by looking up the correspondence table, on the basis of the self-station speech address of said radio portable terminal which is notified by a calling number notifying function when starting speech communication.

[Claim 4] A radio portable terminal communication system according to claim 3, characterized in that said radio portable terminal has a function of transmitting the self-station speech communication address to said center by packet communication, and registering the correspondence between the self-station IP address and the self-station speech communication address in the correspondence table.

[Claim 5] A radio portable terminal

communication system according to claim 1 or 2, characterized in that said center has a function of designating an address on said center side dialed when starting speech communication with respect to said radio portable terminal by packet communication during execution of packet communication by said radio portable terminal, and a function of acquiring an IP address of said radio portable terminal by specifying said radio portable terminal from the terminated speech communication address.

[Claim 6] A radio portable terminal for a radio portable terminal communication system according to claim 1 or 2, characterized in that a radio portable terminal includes a microphone, a speaker, a display screen, and a key operation section, and has a speech communication function and a packet communication function.

[Claim 7] A center for a radio portable terminal communication system according to claim 1 or 2, characterized in that a radio portable terminal comprises a speech control section for performing speech communication with said radio portable terminal during execution of packet communication by said radio portable terminal, a speech recognition section for recognizing a speech signal received by said speech control section and sent from said radio portable terminal, an information search section for searching for information

corresponding to the speech information recognized by said speech recognition section, a speech conversion section for converting the information which can be converted into speech of the information searched out by said information search section into a speech signal and outputting the signal to said speech control section, and a packet control section for transmitting information which can be displayed on a screen of the information searched by said information search section to said radio portable terminal by packet communication.

[Claim 8] A center according to claim 7, characterized in that said speech control section of said center comprises a correspondence table of a self-station IP address of said radio portable terminal and a self-station speech communication address, and has a function of notifying said packet control section of the self-station IP address which is obtained by looking up the correspondence table, on the basis of the self-station speech address of said radio portable terminal which is notified by a calling number notifying function when starting speech communication.

[Claim 9] A center according to claim 7, characterized in that said center has a function of designating an address on said center side dialed when starting speech communication with respect to said radio portable terminal by packet communication during execution of packet communication by said radio portable

terminal, and a function of acquiring an IP address of said radio portable terminal by specifying said radio portable terminal from the terminated speech communication address.

[Detailed Description of the Invention]

[0001]

[Technical Field to Which the Invention
Belongs]

The present invention relates to a radio portable terminal communication system and, more particularly, to a system for searching for information and the like by using packet communication over a radio portable terminal.

[0002]

[Background Art]

Conventionally, when searching for information by using packet communication over a portable telephone, an operator selects a search word from search items displayed on the screen of the portable telephone or inputs a search word as characters by operating keys on the portable telephone and transmits the search word in a packet to an information provider. The information provider returns information searched from the search word to the portable telephone in a packet. The information is displayed on the screen of the portable telephone.

[0003]

As a method capable of easily searching, information searching using speech communication over portable telephones is also available. In this case, however, an uttered search word is speech-recognized and information is searched out by the information provider from the search word. Thereafter, the information is converted into speech and returned to the portable telephone.

[0004]

[Problems to be Solved by the Invention]

In the information searching method using packet communication over the portable telephone as described above, when many search words are prepared in searching for information by packet communication, they cannot be displayed on the screen of the portable telephone at once. For this reason, the method of, e.g., arranging search items in a tree structure and selecting a search word while switching pictures on the screen is employed. However, it takes time to reach the target search word.

[0005]

As another method of inputting a search word, a method of inputting a search word as characters by operating key buttons on a portable telephone is available. However, the keys on the portable telephone are small in size. In addition, since one key is used for a plurality of characters, cumbersome operation is

required, and much time is required for the operation.

[0006]

In the case of the search of speech recognition by using speech communication described above, a search word can be input by speech over a portable telephone. However, a search result is returned by speech and is not recorded. In addition, image information cannot be returned to the portable telephone.

[0007]

The present invention has been made in consideration of the above problems, and has as its object to provide a system designed to improve the operability of the radio portable terminal which can input an information search word and data by speech, and can recognize a search result in speech, image, and character.

[0008]

[Means of Solution to the Problem]

The present invention is characterized in that, during the conventional packet communication, a search word and data of information to be searched are input by an utterance using speech communication over a radio portable terminal side to transmit the speech to a center through the radio portable terminal, the center recognizes a received speech signal in a speech recognition section on the center side, the information

searched in accordance with the search word serving as the recognition result is returned to the radio portable terminal in speech by speech communication, and this search information is returned by packet communication as information, e.g., image and character to display the information on the screen of the radio portable terminal.

[0009]

When the data such as the search word needs to be input during execution of packet communication using the radio portable terminal, the user inputs by the utterance the search word to a microphone of the radio portable terminal to transmit the speech to a speech control section provided on the center side by speech communication. The speech control section of the center transmits the received speech to the speech recognition section. The speech recognition section recognizes this speech to transmit the search word, i.e., the search result to an information search section.

[0010]

The information search section searches the information relevant to the search word from an information provider such as the Internet. The information search section sends the searched information to an information conversion section to convert the information into the speech, and returns the speech to the radio portable terminal by speech communication. Simultaneously, the information search

section sends the searched image/character information to a packet control section. The packet control section returns the information to the radio portable terminal by packet communication. The radio portable terminal displays the received search result on the screen.

[0011]

According to the present invention, during packet communication, since the information search words and data with many items can be easily input, the operability of the portable terminal is improved, and the radio portable terminal can be implemented, which can designate the search word and the like by speech and visually recognize the images/characters as the search result to improve the performance.

[0012]

[Mode of Carrying Out the Invention]

Fig. 1 is a block diagram showing a radio portable terminal communication system according to an embodiment of the present invention. The radio portable terminal communication system of this embodiment is constituted by a radio portable terminal 10, a center 20, the Internet 22, and an article information file 21. The center 20 is comprised of a speech control section 15, a speech recognition section 16, an information search section 17, a speech conversion section 18, and a packet control section 19.

[0013]

The speech control section 15 includes a radio portable terminal self-station IP/self-station speech communication address correspondence table 30.

[0014]

Fig. 2 is a schematic view of the portable terminal 10 used in the radio portable terminal communication system of the present invention. The radio portable terminal 10 is constituted by a packet communication → speech communication switch (to be referred to as a switch 01 hereinafter) 01, a speech communication → packet communication switch (to be referred to as a switch 02 hereinafter) 02, a microphone 13, a speaker 11, a screen 12, and a key operation section 14.

[0015]

Fig. 3 shows the radio portable terminal self-station IP/self-speech communication address correspondence table 30. This table 30 is made in advance by a method of causing the user of the radio portable terminal to key-input the self-station speech communication address of the radio portable terminal and transmit it to the center by packet communication.

[0016]

Assume that, in this embodiment, the message "Please input a trade name" is displayed on the screen during packet communication to prompt the user to input a trade name, and the user searches an article

information file on the Internet for information about the trade name "ABC".

[0017]

The user presses the switch 01 of the radio portable terminal 10, and then dials to start speech communication with the center 20. The speech control section 15 of the center 20 is notified of the self-station speech communication address of the radio portable terminal 10 by the calling number notifying function, and looks up the radio portable terminal self-station IP/self-station speech communication address correspondence table 30 to acquire a self-station IP address corresponding to the self-station speech communication address. The acquired self-station IP address is sent to the packet control section 19.

[0018]

When the user utters "ABC" toward the microphone 13, the speech input to the microphone 13 is sent to the speech control section 15 by speech communication. The speech control section 15 sends the speech to the speech recognition section 16. The speech recognition section 16 recognizes the speech and sends the recognition result "ABC" to the information search section 17. The information search section 17 acquires the information about the article "ABC" from the article information file 21 on the Internet.

[0019]

The information search section 17 sends to the speech conversion section 18 the information which can be provided to the user by speech about the article "ABC". The speech conversion section 18 converts the information into speech and sends it to the speech control section 15. The speech control section 15 transmits the speech information about the article "ABC" to the radio portable terminal 10 by speech communication. The radio portable terminal 10 outputs the received speech information about the article "ABC" from the speaker 11 to provide it to the user.

[0020]

Simultaneously, the information search section 17 sends to the packet control section 19 the image/character information or the like which can be displayed on the screen about the article "ABC". When the user presses the switch 02 of the radio portable terminal 10, the packet control section 19 transmits the image/character information and the like to the IP address of the radio portable terminal 10 by packet communication, which are received from the speech control section 15. The radio portable terminal 10 displays the image/character information and the like on the screen 12.

[0021]

In the embodiment described above, the user

operates the switches 01 and 02 to switch packet communication and speech communication. However, the packet control section 19 or speech control section 15 may automatically switch them in accordance with an instruction from a program and the like to obtain the same effect.

[0022]

If a broadband communication network is used as an infrastructure, the present invention can be implemented even in a condition where packet communication and speech communication are concurrently started and continued without switching them in the process of communication. In this case, the positions and presence/absence of switches impose no limitations on the present invention.

[0023]

[Effect of the Invention]

The present invention can notify a center side of an information search word/data by speech when the information search word/data is input during execution of packet communication by a radio portable terminal, recognize the speech on the center side, converts information and the like which are searched on the basis of the recognition result into speech to transmit the information to the radio portable terminal by speech communication, and display image/character information on the screen of the radio portable terminal by packet

communication. Hence, the input operability of the radio portable telephone is improved in inputting the information search word/data. Additionally, the radio portable terminal with a high functionality can be implemented, in which the user can designate the search word and the like by the speech and visually check a searched image/character.

[Brief Explanation of the Drawings]

[Fig. 1]

Fig. 1 is a block diagram showing a radio portable terminal communication system according to an embodiment of the present invention.

[Fig. 2]

Fig. 2 is a schematic view of a portable terminal 10 used in the radio portable terminal communication system of the present invention.

[Fig. 3]

Fig. 3 shows a radio portable terminal self-station IP/self-station speech communication address correspondence table.

[Explanation of the Reference Numerals and Signs]

- 01: packet communication → speech
communication switch
- 02: speech communication → packet
communication switch
- 10: radio portable terminal

- 11: speaker
- 12: screen
- 13: microphone
- 14: key operation section
- 15: speech control section
- 16: speech recognition section
- 17: information search section
- 18: speech conversion section
- 19: packet control section
- 20: center
- 21: article information file
- 22: Internet
- 30: radio portable terminal self-station
IP/self-station speech communication
address correspondence table

[Document Name] Abstract

[Abstract]

[Problem] The present invention provides a system wherein an information search word/data can be input by speech, the operability of a radio portable terminal is improved, and the user can check the search result by an image and character.

[Solving Means] An information search word input by speech from a radio portable terminal 10 is sent to an information search section 17 through a speech control section 15 and speech recognition section 16 by speech communication to acquire information relative to the information search word from an article information file 21 on the Internet. The information search section 17 transmits information which is related to the information search word and provided to the user by speech through a speech conversion section 18, the speech control section 15, and speech communication. Simultaneously, the information search section 17 transmits to the radio portable terminal 10 image/character information and the like which are related to the information search word and can be displayed on the screen of the radio portable terminal 10 through a packet control section 19 and packet communication.

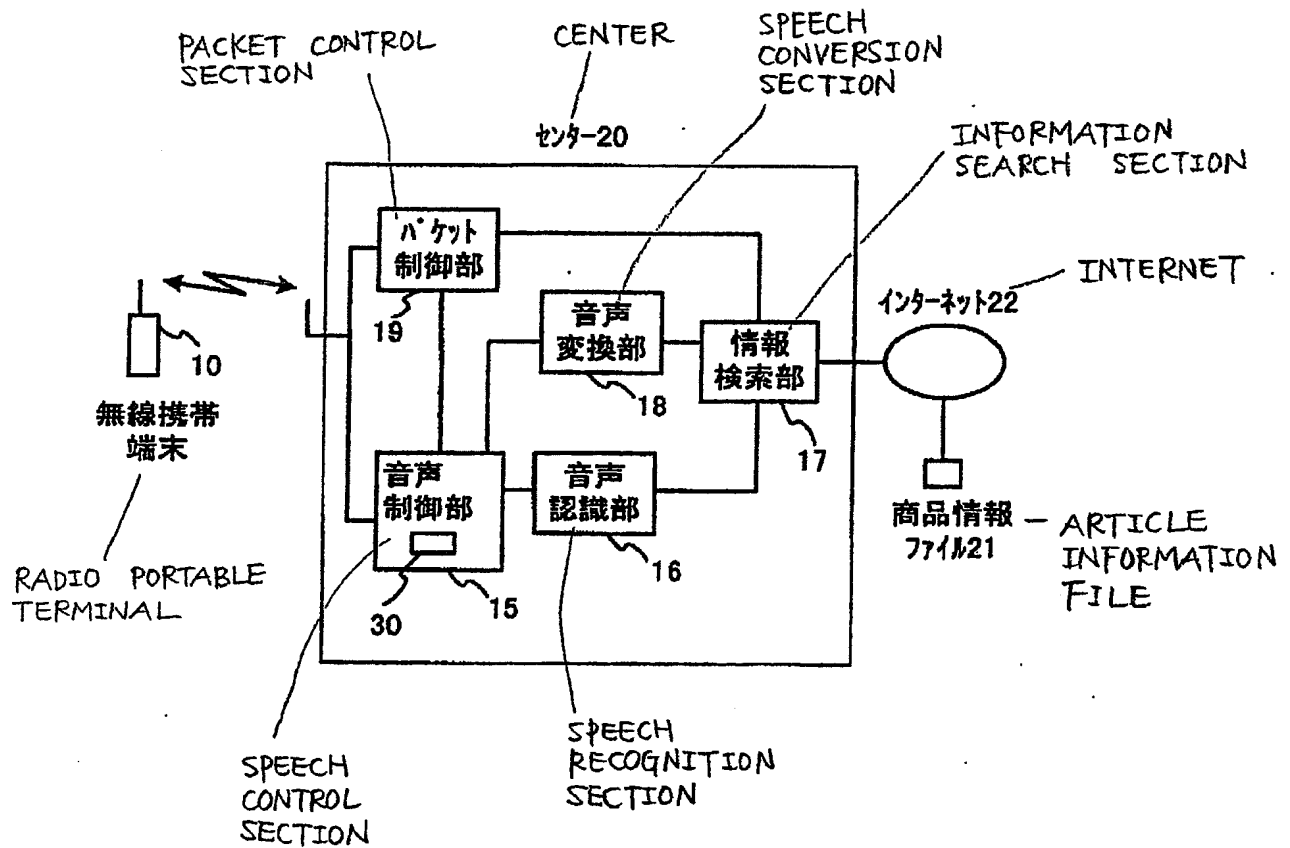
[Selected Figure] Fig. 1

【書類名】 図面 DRAWINGS

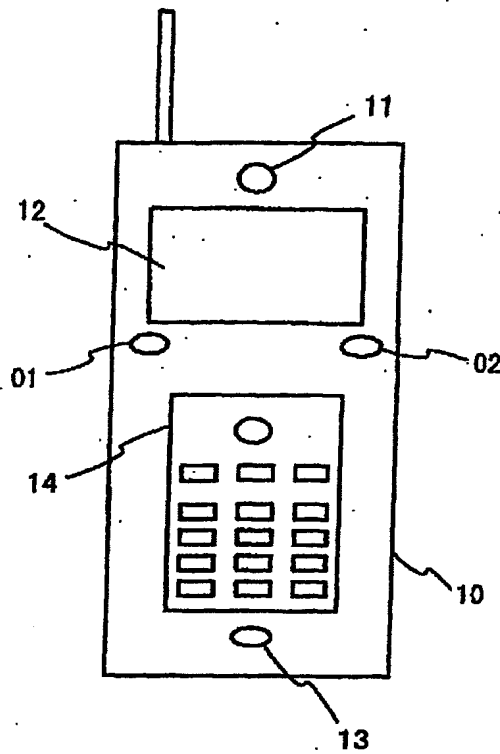
DOCUMENT NAME

【図1】

FIG. 1



【図2】 FIG. 2



【図3】

FIG.3

RADIO PORTABLE TERMINAL SELF-STATION IP/
SELF-STATION SPEECH COMMUNICATION
ADDRESS CORRESPONDENCE TABLE

無線携帯端末自局IP/自局音声通信アドレス対応テーブル30

自局IPアドレス	自局音声通信アドレス
0001	070-555-8888
0002	070-666-9999
0003	070-333-2222
⋮	⋮

SELF-STATION
SPEECH
COMMUNICATION
ADDRESS

SELF-STATION
IP ADDRESS